

IN THE CLAIMS:

Add claim 22 reading as follows:

E | 22. The light-weight golf club shaft of claim 1, wherein the golf club shaft
has 4 to 8 layers.

REMARKS

Reconsideration of this application is requested. Claims 22 has been added. Support for claim 22 is found at, for example, original claim 1 and embodiment 1 (page 15, line 12, to page 19, line 5, and Figures 4(a)-(h) and 5) in the specification. Claims 1, 21, and 22 are pending and at issue.

Claim 22 recites a shaft having only 4 to 8 layers. In contrast, Cheng discloses a base rod 20 which typically has 10-20 layers of a fiber reinforced resin composite (col. 2, lines 64-65). Cheng does not teach or suggest that a light-weight golf club shaft having the claimed torsional strength and weight can be obtained with only 4-8 layers. In fact, Cheng suggests that at least 10 layers is necessary to obtain sufficient rigidity (col. 2, line 64 - col. 3, line 12).

Claim 21 has been rejected under 35 U.S.C. §103(a) as obvious over Jackson (U.S. Patent 3,646,610) in view of Kusumoto (U.S. Patent 6,106,413), JP 6-114131 (hereinafter JP '131), JP 9-140840 (hereinafter JP '840), Preece (U.S. Patent 6,126,557) and Cecka (U.S. Patent 4,157,181).

Applicants traverse this rejection and request reconsideration.

Kusumoto allegedly discloses a shaft made with fibers in the form of prepreg sheets having a thickness not more than 0.06 mm. The Examiner concludes that it would have been obvious to one of ordinary skill in the art to have modified the teachings of Jackson to include a second angled layer having a thickness of from 0.04 to 0.1 mm as recited in pending claim 21.

Kusumoto discloses a tubular body which includes an intermediate layer 4 interposed between a layer of AP prepreg 3 (a/k/a the main body layer) and layers of SP prepreg 5, 6 (col. 2, lines 46-51; col. 12, lines 63-66). See Figures 1 and 2 of Kusumoto. The intermediate layer is arranged in the circumferential direction (col. 3, lines 4-8). Therefore, the intermediate layer has fibers perpendicular to the longitudinal axis.

In contrast, the fibers in the second angled layer of the shaft of claim 21 are oriented at an angle of 35-75°. Furthermore, the particular shaft illustrated in Kusumoto does not include two angled layers. Thus, Kusumoto does not provide any motivation for forming a shaft have two angled layers in which the second angled layer is oriented at an angle of 35-75° and has a thickness of 0.04 to 0.1 mm.

Jackson allegedly discloses a second angled layer (50' in Figure 15). This layer 50' includes spirally wound fiber glass *strands* 51' and 52'. Throughout the specification, Jackson distinguishes between filaments and strands. A "strand" is a complex of fibers or filaments that have been twisted together. See the attached definition of "strand". Jackson, therefore, clearly states his desire that the fibers be twisted (e.g., intertwined or braided) together rather than bonded together.

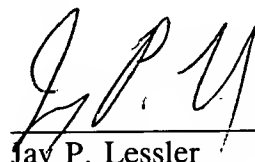
The Examiner contends that Preece provides the motivation for forming layer 50' in Jackson by bonding two layers of fibers. The layer shown in Figure 1B of Preece and described in the specification of Preece are not strands. One of ordinary skill in the art would not have had the motivation to replace the *strands* in Jackson with the bonded layers disclosed in Preece.

For the foregoing reasons, Jackson alone or in combination with the other cited references fails to render obvious the golf club shaft recited in claim 21. Accordingly, this rejection should be withdrawn.

In view of the above amendments and remarks, it is respectfully requested that the application be reconsidered and that all pending claims be allowed and the case passed to issue.

If there are any other issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

Respectfully submitted



Jay P. Lessler
Reg. No. 41,151
Attorney for Applicants

DARBY & DARBY
Post Office Box 5257
New York, NY 10150-5257
Phone (212) 527-7700

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2 entries found for **strands**.**strand**² [Pronunciation Key](#) (strănd)

n.

1. A complex of fibers or filaments that have been twisted together to form a cable, rope, thread, or yarn.
2.
 - a. A single filament, such as a fiber or thread, of a woven or braided material.
 - b. A wisp or tress of hair.
3. Something that is plaited or twisted as a ropelike length: *a strand of pearls; a strand of DNA*.
4. One of the elements woven together to make an intricate whole, such as the plot of a novel.

tr. v. **strand·ed, strand·ing, strands**

1. To make or form (a rope, for example) by twisting strands together.
2. To break a strand of (a rope, for example).

[Middle English *strond*.]

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strand¹ Pronunciation Key (strănd)

n.

The land bordering a body of water; a beach.

v. strand·ed, strand·ing, strandsv. *tr.*

1. To drive or run ashore or aground.
2. To bring into or leave in a difficult or helpless position: *The convoy was stranded in the desert.*
3. Baseball. To leave (a base runner) on base at the end of an inning.
4. Linguistics. To separate (a grammatical element) from other elements in a construction, either by moving it out of the construction or moving the rest of the construction. In the sentence *What are you aiming at*, the preposition *at* has been stranded.

v. *intr.*

1. To be driven or run ashore or aground.
2. To be brought into or left in a difficult or helpless position.

[Middle English, from Old English.]

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